

Tuesday, 11/29/2005 6:48:17 PM
Linda Lacelle

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : FWD TUBE ASSEMBLY
 Job Number : 25035
 Estimate Number : 10467
 P.O. Number : N/A Part Number : D3391021
 This Issue : 11/29/2005 S.O. No. : N/A Drawing Number : D3391 REV B Rev. D
 Prsht Rev. : NC Project Number : N/A PH 05.03.02
 First Issue : N/A Type : MACHINED PARTS Drawing Revision : B
 Previous Run : N/A Material : N/A
 Due Date : 12/21/2005 Qty: 4 Um: Each
 Written By : SEE ABOVE USER & DATE
 Checked & Approved By : LL LL LL LL
 Comment : Created By Auto Work Order

Additional Product

Job Number:



Seq. #: Machine Or Operation: Description:

1.0 D6013047 SKIDTUBE MAT'L



Comment: Qty.: 1.0000 Each(s)/Unit Total: 4.0000 Each(s)

SKIDTUBE MAT'L

Pick:

Qty	Part Number	Description	Batch
1	D6013-047	Extrusion	B23925

Batch

B23925

DP 06-1-12 ⑤

Tools:

2.0 LANDING GEAR 1 LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

Cut extrusion to 46.52 +0.010 -0.020

DP 06-1-12 ⑤

Tools:

3.0 BRAKE NC NC BRAKE



Comment: NC BRAKE

Bend as per Dwg D3391

DP 06-1-12 / 06-2-28 ⑤

Tools:

4.0 QC5 INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

Tools:

Ja 02-20 5

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
06/03/03	5	1 piece scrap the piece the slot was not straight	<i>AB</i> 060309	destroy	<i>ml</i> 06/03/03	<i>[Signature]</i> 060309	<i>AB</i> 060309	<i>[Signature]</i> 060309

NOTE: Date & initial all entries

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 25035

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

HAAS1

HAAS CNC VERTICAL MACHINING #1



Comment: HAAS CNC VERTICAL MACHINING #1

1-Machine as per Folio FA590 Rev. D & Dwg D3391 Rev. D

Identify as D3391-1

2-Debur

ml/SD 06.03.03 4 PTO

Tools:

6.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

ml 06/03/04 4

Tools:

7.0

QC8

SECOND CHECK



Comment: SECOND CHECK

MS 06/03/0 4

Tools:

8.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

Drill and c'sink float bag holes as per Dwg D3391 using DT8798

Drill wearplate holes as per Dwg D3391

Debur

> DP06-3-23 (4)

Tools:

9.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Acid etch and Alodine as per QSI 005 4.1 *EX* 06-03-23 (3)

Tools:

10.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref. 4.3.5.1) as per QSI 005 4.3

ML 06/03/23 (3)

Tools:

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B		Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng				

NOTE: Date & initial all entries

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 25035

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

11.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

Tools:

IC 06 04 03 (3)

12.0

D3401041

Tow Cap Assembly



Comment: Qty.: 1.0000 Each(s)/Unit Total: 4.0000 Each(s)

Tow Cap Assembly

Pick:

Qty

Part Number

Description

Batch

1

D3401-041

Tow Cap

B25548

Tools:

13.0

AN3C4A

Bolt



Comment: Qty.: 4.0000 Each(s)/Unit Total: 16.0000 Each(s)

Bolt

Pick:

Qty

Part Number

Description

Batch

4

AN3C4A

Bolt

M19185

Tools:

14.0

NAS1330C3KB166

Rivnut



Comment: Qty.: 24.0000 Each(s)/Unit Total: 96.0000 Each(s)

Rivnut

Pick:

Qty

Part Number

Description

Batch

24

NAS1330C3KB166

Insert

M19354

Tools:

ACCESSORY B166

15.0

NAS1515H3

Washer



Comment: Qty.: 4.0000 Each(s)/Unit Total: 16.0000 Each(s)

Washer

Pick:

Qty

Part Number

Description

Batch

4

NAS1515H3

Washer

M19185

Tools:

15.1

4

AN960C106

M18822

06-01-26 MDPV 06/04/04 (3)

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes ☐ No ☒ DQA: Date: 06/04/10
 QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 25035

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

16.0

SMALL FAB 1

SMALL & MEDIUM FAB RESOURCE 1



Comment: SMALL & MEDIUM FAB RESOURCE 1

Install inserts and Tow Cap as per Dwg D3391

Identify as D3391-021

M DL 06/04/04

(3)

Tools:

17.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

M DL 06/04/04

(3)

Tools:

18.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: _____

FC 06 04 07 (3)

Tools:

19.0

DC

DOCUMENT CONTROL



Comment: DOCUMENT CONTROL

Inspection Level 21

DL 06/04/04 (3)

Tools:

Job Completion



U 06.04.07

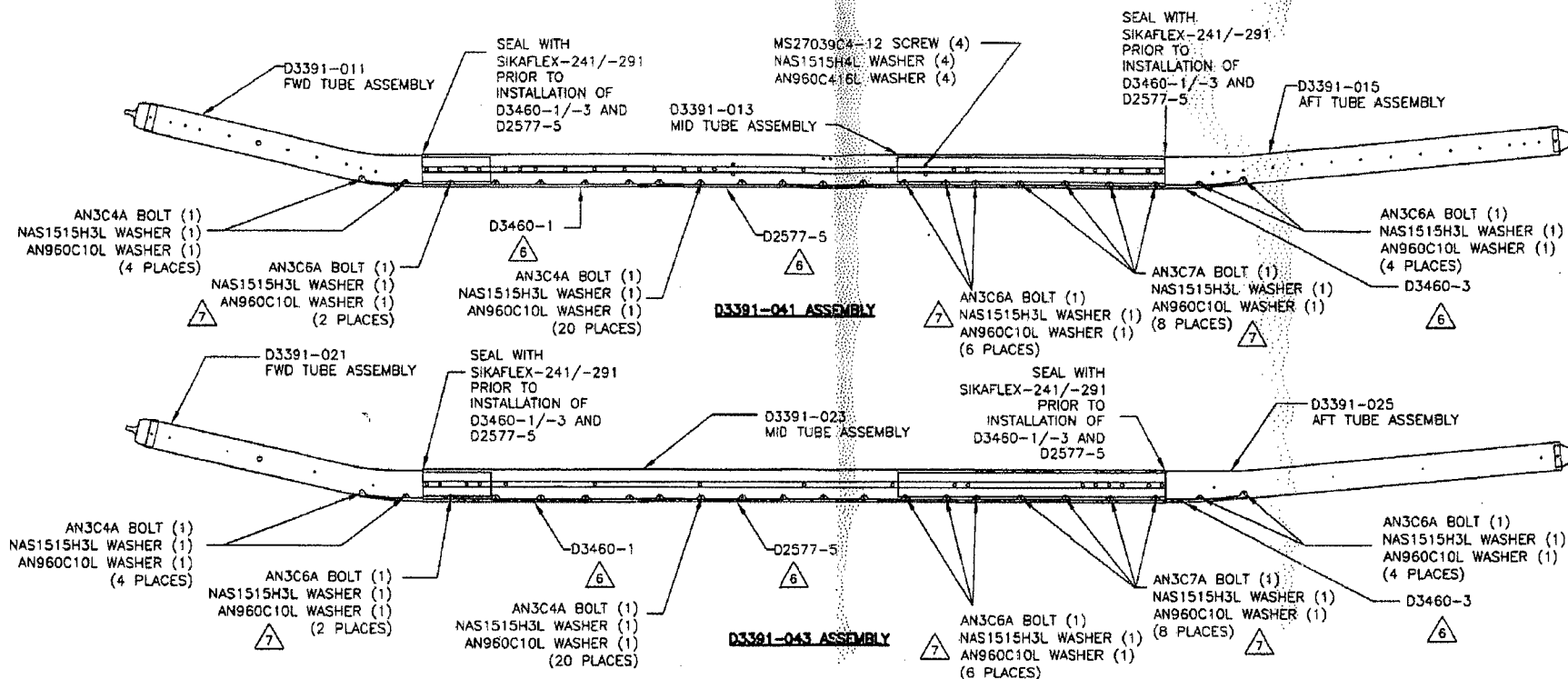
W/O: _____		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



GENERAL NOTES

- 1) ALL DIMENSIONS ARE IN INCHES
- 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 3) FINISH: ACID ETCH AND ALODINE PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 4) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY. CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL 'E' SIZE HOLES (#0.250-#0.257) FOR WEARSHOE INSERTS.
C/SINK #0.391/#0.425 x 100" AS APPLICABLE AND INSTALL INSERTS EXCEPT WHERE INDICATED.
- 6) APPLY A LAYER OF SIKAFLEX -241/-291 ADHESIVE BETWEEN THE BOTTOM OF THE SKIDTUBE ASSEMBLY AND THE WEARPLATES
- 7) DO NOT TORQUE, HAND TIGHTEN ONLY

D3391-041/-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

QTY - 041	QTY - 043	PART NUMBER	DESCRIPTION
X	X	D3391-041	FLOAT SKIDTUBE ASSEMBLY
		D3391-043	FLOAT SKIDTUBE ASSEMBLY
1		D3391-011	FWD TUBE ASSEMBLY
1		D3391-013	MID TUBE ASSEMBLY
1		D3391-015	AFT TUBE ASSEMBLY
	1	D3391-021	FWD TUBE ASSEMBLY
	1	D3391-023	MID TUBE ASSEMBLY
	1	D3391-025	AFT TUBE ASSEMBLY
24	24	AN3C4A	BOLT
12	12	AN3C6A	BOLT
8	8	AN3C7A	BOLT
44	44	NAS1515H3L	WASHER
44	44	AN960C10L	WASHER
4		MS27039C4-12	SCREW
4		NAS1515H4L	WASHER
4		AN960C416L	WASHER
1	1	D2577-5	WEARSHOE
1	1	D3460-1	WEARSHOE
1	1	D3460-3	WEARSHOE

RELEASED

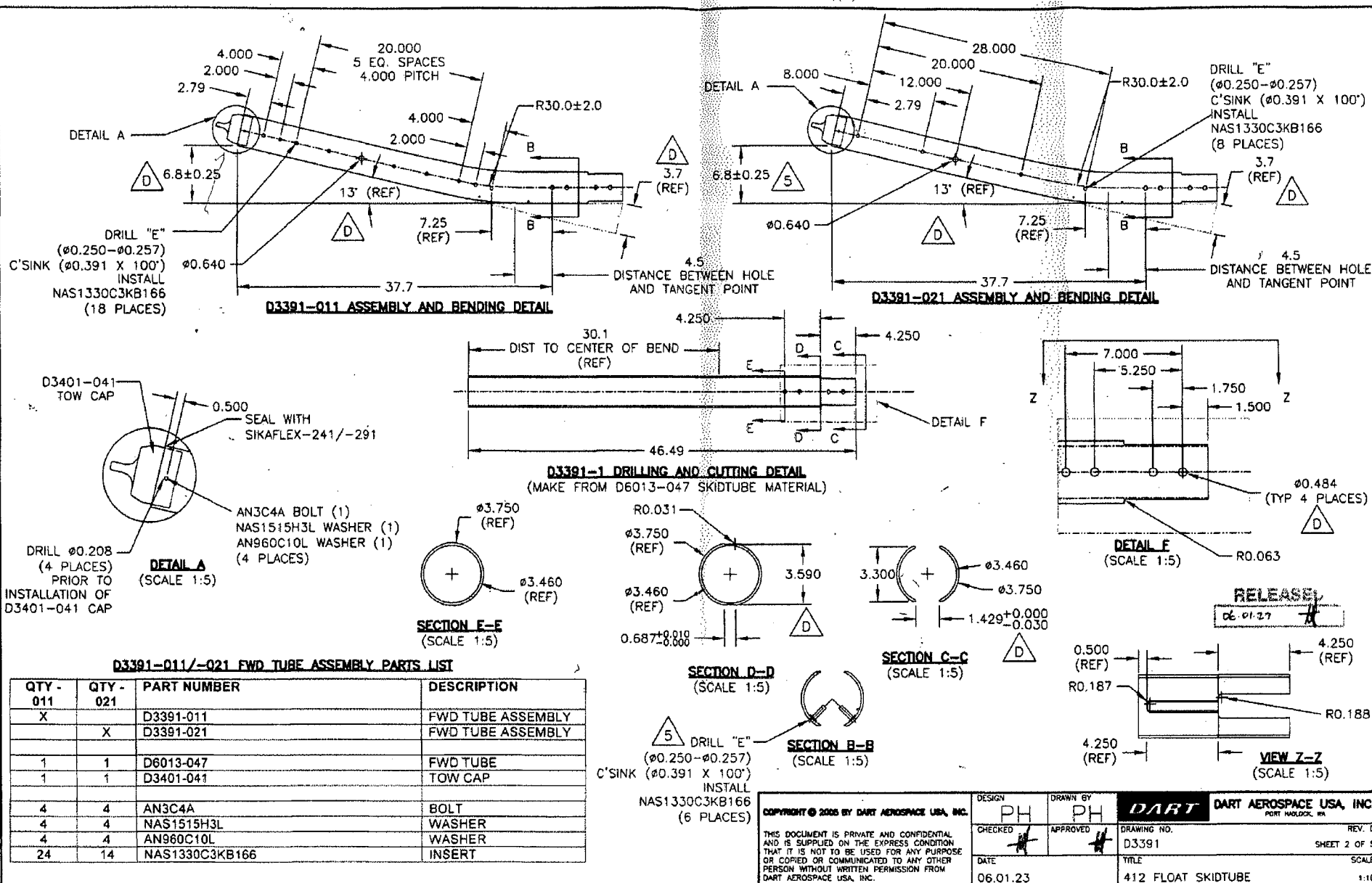
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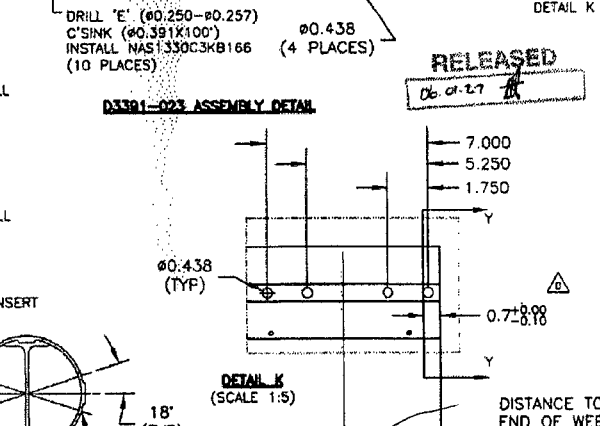
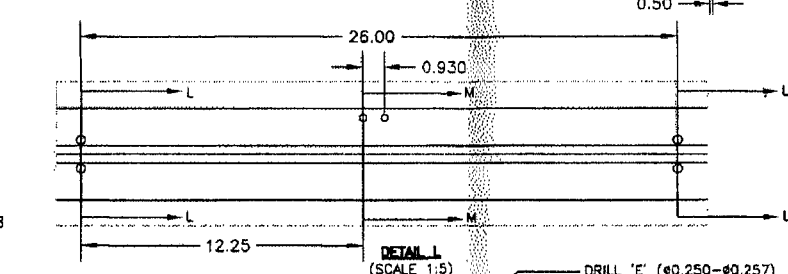
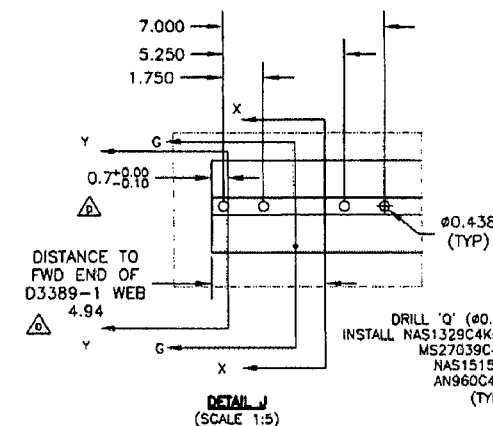
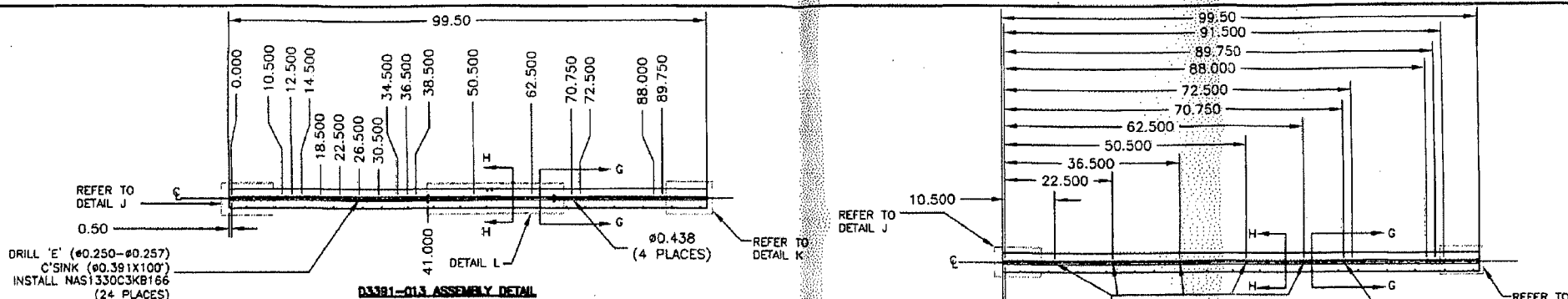
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DESIGN	PH	DATE	06.01.23
CHECKED	PH	TITLE	412 FLOAT SKIDTUBE
DRAWN BY	PH	SCALE	NTS
APPROVED	PH		
DRAWING NO.	D3391	REV. 0	SHEET 1 OF 5
DATE	06.01.23		

DART DART AEROSPACE USA, INC.
PORT HADLOCK, MA

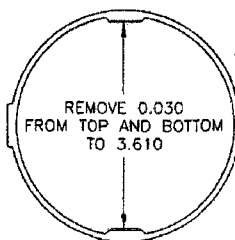




D3391-013/-023 MID TUBE ASSEMBLY PARTS LIST

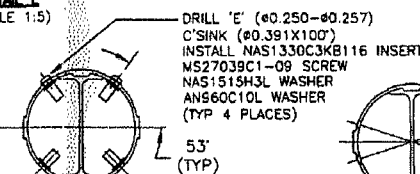
QTY - 013	QTY - 023	PART NUMBER	DESCRIPTION
X	X	D3391-013	MID TUBE ASSEMBLY
		D3391-023	MID TUBE ASSEMBLY
1	1	D2500-1-100	EXTRUSION
1	1	D3389-1	WEB
24	20	NAS1330C3KB116	INSERT
24	10	NAS1330C3KB166	INSERT
4		NAS1328C4KB140	INSERT
4		NAS1515H3L	WASHER
4		AN960C10L	WASHER
4		NAS1515H4L	WASHER
4		AN960C416L	WASHER
4		MS27039C1-09	SCREW
4		MS27039C4-08	SCREW

SECTION L-L
(SCALE 1:4)

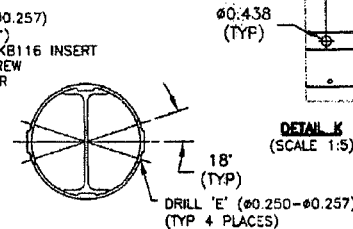


SECTION X-X
(SCALE 1:2)

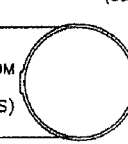
SECTION M-M
(SCALE 1:4)



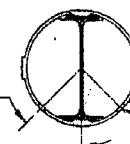
SECTION U-U
(SCALE 1:4)



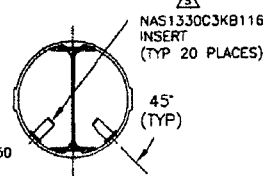
SECTION Y-Y
(SCALE 1:4)



SECTION G-G
(SCALE 1:4)



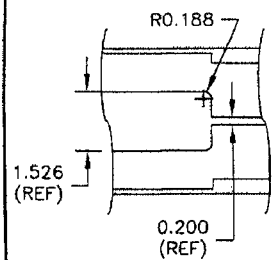
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(SCALE 1:4)



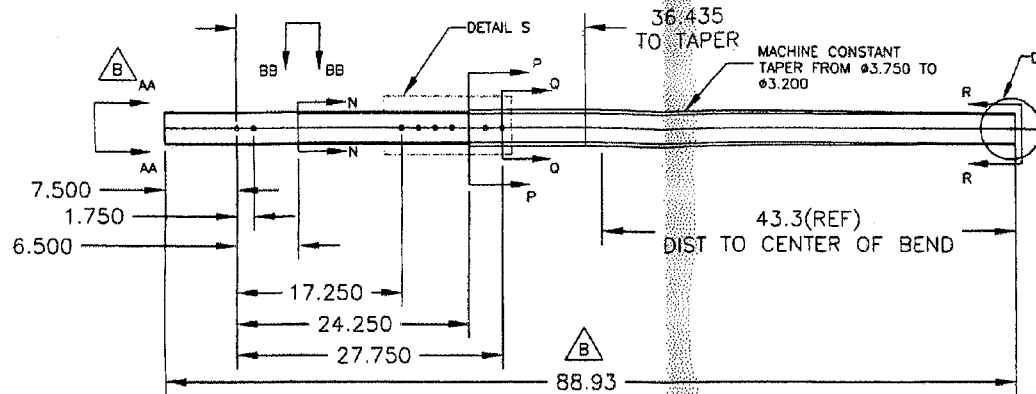
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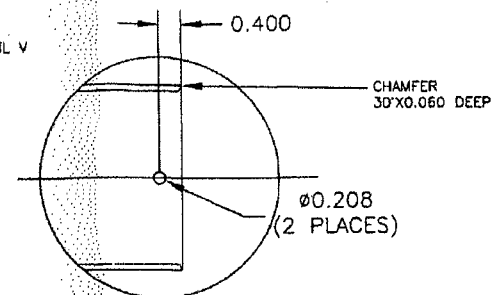
DESIGN PH	DRAWN BY PH	DART AEROSPACE USA, INC. PORT HADLOCK, WA	
CHECKED #	APPROVED #	DRAWING NO. D3391	REV. D SHEET 3 OF 5
DATE 06.01.23	TITLE 412 FLOAT SKIDTUBE	SCALE 1:20	



VIEW BB-BB
(SCALE 1:3)

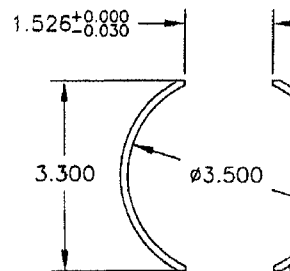


D3391-3 AFT DRILLING AND CUTTING DETAIL
(MAKE FROM D6014-090 SKIDTUBE MATERIAL)

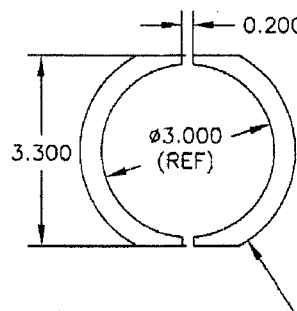


DETAIL V
(SCALE 1:2)

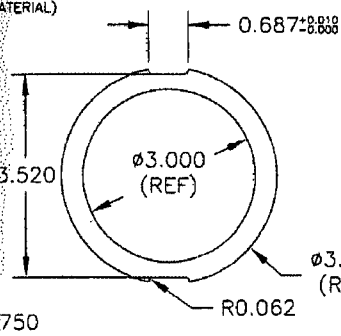
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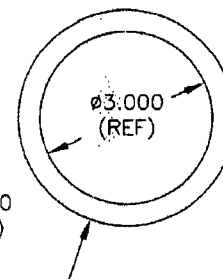
SECTION AA-AA
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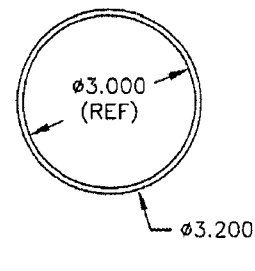
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(SCALE 1:2)



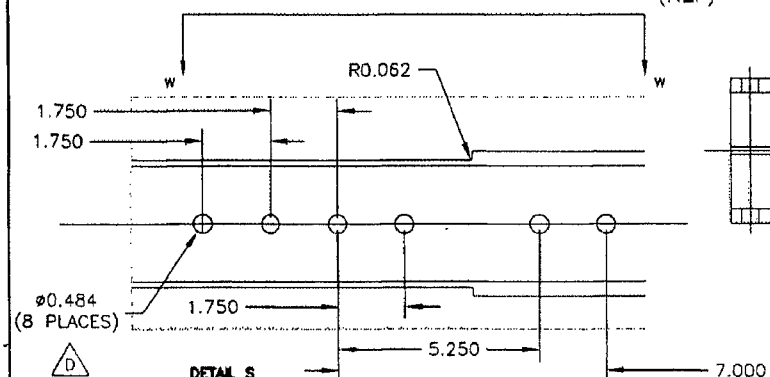
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(SCALE 1:2)



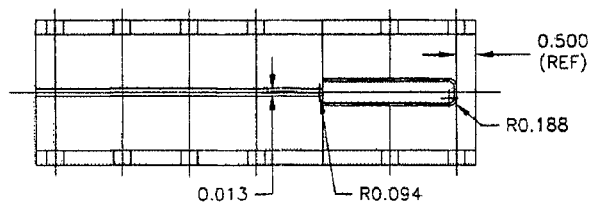
SECTION Q-Q
(SCALE 1:2)



SECTION R-R
(SCALE 1:2)



DETAIL S
(SCALE 1:3)

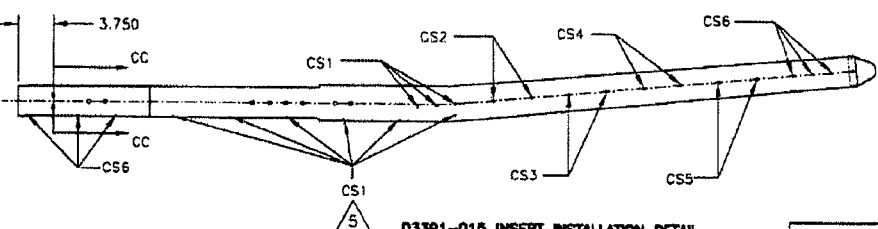
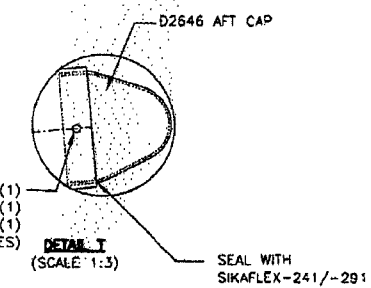
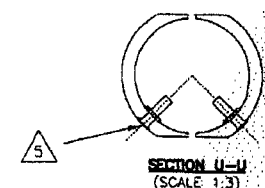
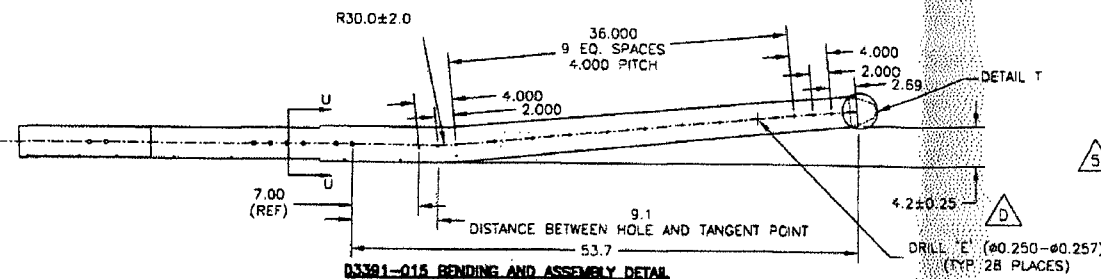


VIEW W-W
(SCALE 1:3)

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DESIGN	PH	DRAWN BY	PH	DART DART AEROSPACE USA, INC. PORT HADLOCK, OH
CHECKED	PH	APPROVED	PH	DRAWING NO. D3391
DATE	06.01.23	TITLE	412 FLOAT SKIDTUBE	REV. 0 SHEET 4 OF 5 SCALE 1:12

RELEASED
06.01.23

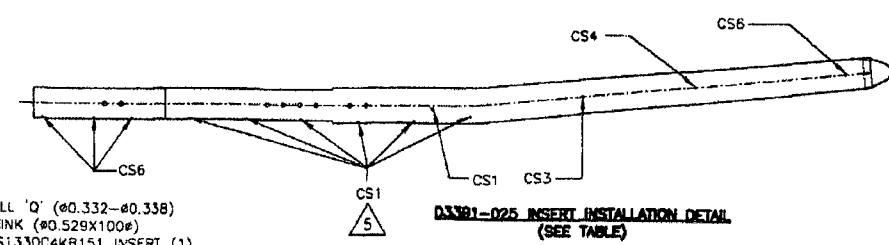
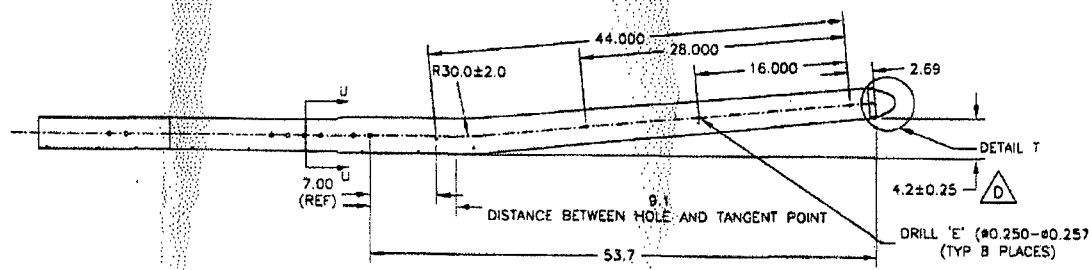
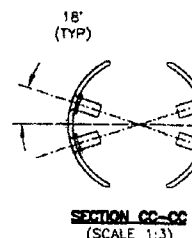


C'SINK AND INSTALL AESS10KBXXX AND/OR NAS1330C3KBXXX IN HOLES MARKED CS1-CS6 AS FOLLOWS

HOLES MARKED	QTY D3391-015	QTY D3391-025	C'SINK	P/N
CS1	18	14	Ø0.425	AESS10KB366
CS2	4		Ø0.391	AESS10KB366
CS3	4	2	Ø0.391	NAS1330C3KB316
CS4	4	2	Ø0.391	NAS1330C3KB266
CS5	4		Ø0.391	NAS1330C3KB216
CS6	12	8	Ø0.391	NAS1330C3KB166

D3391-015/-025 AFT TUBE ASSEMBLY PARTS LIST

QTY - 015	QTY - 025	PART NUMBER	DESCRIPTION
X		D3391-015	AFT TUBE ASSEMBLY
	X	D3391-025	AFT TUBE ASSEMBLY
1	1	D6014-090	AFT TUBE
1	1	D2646	AFT CAP
18	14	AESS10KB366	INSERT
4	2	NAS1330C3KB316	INSERT
4	2	NAS1330C3KB266	INSERT
4		NAS1330C3KB216	INSERT
12	8	NAS1330C3KB166	INSERT
4		NAS1330C4KB151	INSERT
2	2	AN304A	BOLT
2	2	NAS1515H3L	WASHER
2	2	AN960C10L	WASHER



DRILL 'Q' (Ø0.332-Ø0.338)
C'SINK (Ø0.529X100#)
NAS1330C4KB151 INSERT (1)
(4 PLACES)

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DESIGN	PH	DRAWN BY	PH	DART DART AEROSPACE USA, INC. PORT HADLOCK, MA
CHECKED	PH	APPROVED	PH	
DATE	06.01.23	DRAWING NO.	D3391	REV. 0
TITLE	412 FLOAT SKIDTUBE	SHEET	5 OF 5	SCALE
				1:12

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

[illegible]

04.03.08

Measured by:	<i>SM</i>	Audited by:	<i>MS</i>	Prototype Approval:	<i>PA</i>
Date:	<i>06/03/04</i>	Date:	<i>06/03/10</i>	Date:	<i>06/03/08</i>

Rev	Date	Change	Revised by	Approved
A		New Issue	KJ/RF	

Peter Hum

From: David Shepherd [davids@dartaero.com]
Sent: Tuesday, March 07, 2006 4:38 PM
To: Peter Hum
Subject: Re: D3391-021 dimension out of tolerance

As long as the D3391-021 fit into the mid tubes, then this deviation is acceptable.

David

----- Original Message -----

From: "Peter Hum" <phum@dartaero.com>
To: "David Shepherd (E-mail)" <davids@dartaero.com>
Sent: Tuesday, March 07, 2006 8:47 AM
Subject: D3391-021 dimension out of tolerance

> David,
>
> The height on Section D-D of DWG D3391 pg 2 is measured to 3.615. The
> drawing requires the dimension to be 3.590 (+/- 0.010). Is this deviation
> acceptable for these 4 tubes?
>
> Peter Hum
> Mechanical Designer
>
> DART Aerospace Ltd.
> Email...phum@dartaero.com
> Phone...613-632-3336
> Fax.....613-632-4443
>
>

Peter Hum

From: David Shepherd [davids@dartaero.com]
Sent: Wednesday, March 08, 2006 12:30 PM
To: Peter Hum
Subject: Re: d3391 fwd tube

This is an acceptable deviation.

David

----- Original Message -----

From: "Peter Hum" <phum@dartaero.com>
To: "David Shepherd (E-mail)" <davids@dartaero.com>
Sent: Wednesday, March 08, 2006 9:43 AM
Subject: d3391 fwd tube

> David,
>
> Are the following deviations acceptable?
>
> In Section C-C of D3391 Rev D
>
> The height of the slot is 3.330 (nominal is 3.300)
> and
> The width of the slot is 1.450 (nominal is 1.429)
>
>
> Peter Hum
> Mechanical Designer
>
> DART Aerospace Ltd.
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